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ABSTRACT

This document presents the deliberations and recommendations of the Arizona Governor's Committee on Quality Education, which met from June to October 1983. The broad goals of their recommendations are: (1) to increase expectations of student performance; (2) to increase the breadth and depth of the educational program to which students are exposed; (3) to elevate the status of teachers, improving their training and compensation; and (4) to increase parental involvement in education. A summary of the recommendations is provided, followed by a transcript of committee proceedings that pertain to each recommendation. Topic areas under which recommendations are grouped are the following: primary and secondary school skills, testing and academic achievement, time commitment to education, curriculum requirements, bilingual education, education of the handicapped, evaluation of school program, textbooks, academic credits, slow and gifted, course content, teacher education programs, certification of teachers, employment and tenure of teachers, teacher compensation issues, management and governance, and school financing. Three appendixes are included: the basic academic competencies, the basic academic subjects, and major resources. (TE)

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Education in Arizona
Popular Concerns Unpopular Choices

EA 017 319

A Report of the Governor's Committee on Quality Education

The Committee wishes to thank
the following individuals without
whom the work of the Committee
would not have been possible:

W. Stevenson Bacon
Prudence Lee
Thomas Reno
Pamela Abbott

November 2, 1983

Honorable Bruce Babbitt
Governor of Arizona
State Capitol
1700 West Washington
Phoenix, AZ 85007

and

Honorable Carolyn Warner
Superintendent of Public Instruction
Arizona Department of Education
1535 West Jefferson
Phoenix, AZ 85007

Dear Governor Babbitt and Mrs. Warner:

It is with great pleasure that I submit to you the deliberations and recommendations of the Committee on Quality Education.

During the time from June through October 1983, the Committee held seven working sessions in which we reviewed numerous national reports calling for educational reforms, studied current information on Arizona's elementary, middle, and secondary schools, and listened to invaluable testimony from members of the public who attended the meetings. All of this information, together with the professional and parental expertise provided by the Committee members themselves, formed the basis for our discussions.

We present to you a lengthy list of goals and recommendations for educational reform in Arizona. The choices that we advocate are formidable ones that call for extraordinary leadership. However, we believe that apathy or inaction will only serve to guarantee mediocrity in our schools.

The members of the Committee and I thank you for giving us the opportunity to discuss openly and make recommendations on a subject that is vital to the future of Arizona. We now invite the public to continue these deliberations and work to insure that all Arizonans have the opportunity for a quality education.

Sincerely,

John P. Schaefer

John P. Schaefer, Ph.D.
Chairman

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EDUCATION IN ARIZONA

POPULAR CONCERNS o UNPOPULAR CHOICES

PREFACE

For the past decade concern has been voiced about the quality of our educational system, which has been perceived as deteriorating. Some of the factors that have given rise to this concern are a steady decline in student scores on standardized examinations such as the Scholastic Aptitude Tests (SAT); a concern about the quality of teachers being recruited for the classroom; highly publicized disciplinary problems; teacher strikes; growing concern about America's ability to compete successfully in the high technology sweepstakes; evidence that our graduates no longer possess adequate communication skills, and complaints from our minority groups that their needs are not being effectively addressed.

Those things that we as a nation do well in education tend to be lost in the avalanche of criticism. We have continued to broaden access to our educational system. We now serve a higher percentage of our population than ever before in history. We do have an informed public that can read and make intelligent judgments about complex issues, essential for a democracy that encourages independence and enterprise along with a social conscience. America is at the forefront of science, technology and medicine, and has the resources to retain its position of leadership.

There is, however, a clear challenge to our schools to help maintain the nation's advanced status. Weaknesses do exist at all levels and reforms are in order. Several prestigious groups have independently surveyed problem areas and identified areas where action should be taken. It would appear that as a minimum we need to:

1. Increase our expectations of student performance in school
2. Increase the breadth and depth of the educational program to which students are exposed
3. Elevate the status of teachers, and improve the training they receive and their level of compensation
4. Increase parental involvement in education

These reforms will not be easy to achieve. They will require a willingness to compromise on matters commonly regarded as immutable; a reexamination of traditional ways of doing things; a reordering of priorities; restructuring of budgets; and additional financial resources. Lacking adequate resources,

choices will be difficult and courage and determination will be required. For example, it may be impossible to pay adequate teacher salaries unless some programs are dropped or new revenues made available.

Our recommendations are addressed to all concerned with education: the Governor, the Legislature, the Department of Education, the State Board of Education, the local school boards, district staffs, building administrators, classroom teachers, parents and students. Although individual recommendations may concern only one or two of these groups, effective educational reform will require the cooperation of all.

Hopes and wishes are not the same as achievements, and ambition must not be equated with accomplishment. If we as Arizonans do not pause to analyze the real needs of our schools and provide the means of meeting them, our ambitions for the future, our dreams of achievement, will never come to pass.

-Governor's Committee
on Quality Education

November 2, 1983

THE GOVERNOR'S COMMITTEE ON QUALITY EDUCATION

SUMMARY OF RECOMMENDATIONS

Primary and Secondary School Skills (Pages 14-15)

- Arizona's primary and secondary schools should provide students with fundamental skills in written and oral communications, science, mathematics, social sciences and the arts. All students should have the essential intellectual skills to be effective and productive citizens and to progress to a formal college or university education or to gainful employment

- Arizona's elementary schools should provide students with a sound basis for the study of English language; writing; computational and problem-solving skills; science; social studies; foreign languages, and the arts. Teachers and parents should promote an enthusiasm for learning and individual development

Testing and Academic Achievement (Pages 15-17)

- Grades and standardized tests should be used carefully to measure achievement levels of students and to identify slow learners so that additional instruction can be provided to overcome deficiencies

- Instruction in developing effective work and study habits should be provided to students at an early age and continued until such habits are firmly ingrained

- Alternative systems, such as nongraded classrooms, should be experimented with for the first four years of schooling as possible means of insuring that the basic skills are mastered without the social stigma of failure

- Promotion should be based upon achievement

- The concept of homework should be introduced early in the school experience. The amount of independent work that is expected from students should be reviewed and increased where appropriate

Time Commitment to Education (Pages 17-18)

- The school year should be increased from 175 to 185 days

- Kindergarten should begin at age four and be a full

four-hour program

- Minimum time for grades 1-3 should be expanded from four to five hours a day

- Minimum time for grades 4-6 should be expanded from five to six hours a day

- Minimum time for grades 7-12 should remain as presently structured

- High school students should be required to take a minimum of five academic courses (now four) for each term they are enrolled

- Kindergarten should become a meaningful educational experience in which the basic skills are introduced

- Attendance and participation in school activities should be encouraged and reinforced by schools and parents

- The State Board of Education should initiate a detailed study for all grade levels on the amount of time teachers and students spend on instructional activities

Curriculum Requirements (Pages 18-19)

- High school graduation requirements should be increased to 22 units and include the following:
  English - 4 years
  Mathematics - 3 years
  Science - 3 years
  Social Studies - 3 years
  Computer Science - 1/2 year

  In addition, college bound students should be encouraged to take two years of a foreign language

- Additional opportunities should be provided for academically gifted students

Bilingual Education (Pages 19-20)

- The State Board of Education should work to achieve a statewide consensus on the objectives of bilingual education programs in Arizona

- Early morning and after-hours instruction in English should be available for non-English-speaking students to quickly give them a command of the language

- Teacher preparation for bilingual instruction should be improved

- Research should be undertaken to evaluate the relative effectiveness of different approaches to achieving proficiency in English

Education of the Handicapped (Page 20)

- Programs for the handicapped should continue to receive

high priority. Adequate funding should be provided to school districts to pay for these programs

Evaluation of School Program (Pages 20-22)

- The State should establish a task force of citizens, educators, business and labor leaders to identify clearly the skills that elementary schools should provide to all students. The recommended courses of study and course content should be evaluated against the recommendations developed by the Educational EQuality Project and contained in Academic Preparation for College (see Appendices, I and II)

- A second task force should be appointed to review the high school curriculum. Outlines similar to those presented in the Educational EQuality Project report should be developed for Arizona schools

- An Arizona high school graduate should be able to demonstrate a clear mastery of basic skills. These include reading, writing, speaking and listening, mathematics, reasoning and study skills. Descriptions of competency levels are contained in Chapter 2 of the Educational EQuality Project report

- The State Board of Education should mandate the minimum competency levels that are to be required of all Arizona high school graduates. A minimum must not become a guideline for the optimum or average

Textbooks (Page 22)

- The State should provide free use of textbooks through grade 12

Academic Credits (Pages 22-23)

- Academic activities must be recognized by those involved with education as the primary focus of the educational process. A strong academic curriculum as outlined throughout our report and in the Appendix should be defined for our school system, and academic progress and graduation should be based upon successful completion of the core program

Slow and Gifted (Pages 23-24)

- The state should provide adequate financial resources for schools to deal with the difficulties of educating slow learners

- School districts should be given a financial incentive to provide advanced class offerings for academically gifted children

- Efforts should be made to

involve industry representatives and members of the professions in enriching courses for the gifted

Course Content (Pages 24-25)

- The State Board of Education should continue to review periodically all state course requirements and course content for K-12 classes

- Local boards and schools should review the content and effectiveness of elective and core course offerings. The State Board of Education should develop guidelines for this process

Teacher Education Programs (Pages 25-27)

- A task force comprised of representatives from our state university colleges of education, teachers, principals and school superintendents should reexamine the manner in which teachers are trained. A report with recommendations for improvements should be submitted to the Governor, the Board of Regents, the Superintendent of Public Instruction and the State Board of Education. Areas that should be investigated include the student teaching experience; the amount of academic preparation required for teachers, particularly those aiming to teach in secondary schools; the amount and quality of training in the areas of human relations and communication skills; the number and relative importance of required methodology courses, and the degree of integration and cooperation between the colleges of education and other academic units on university campuses

Certification of Teachers (Page 27)

- Certification of teachers as a prerequisite for employment needs to be evaluated for effectiveness. Certification should be made more flexible to allow highly qualified, noncertified individuals to enter the teaching profession. The effectiveness of this measure should be evaluated by the State Board of Education after a suitable period has elapsed

Employment, Evaluation and Tenure of Teachers (Pages 27-29)

- Performance requirements for teachers, often vague, need to be clearly defined by each school district (required by law as of 1983)

- Programs to evaluate and improve the performance of probationary teachers should be developed and implemented by each school district

- Tenured teachers should be

evaluated regularly to insure continuing effectiveness in the classroom and competency in the subject matter being taught

- Tenure standards are often nonexistent or vague. The standards for tenure need to be clearly defined by each school district

- Each school district should develop clearly defined personnel policies that define the responsibilities and obligations of all employees of the school district. These policy statements should spell out the procedures to be followed for hiring, evaluating and terminating employees. All employees should be thoroughly familiar with the policies of their school districts

- School administrators should receive better instruction in the area of personnel management and should develop and implement sound personnel practices

Teacher Compensation Issues (Pages 29-31)

- The salaries of teachers at all levels are not sufficiently competitive with industry to attract and retain teachers in the necessary numbers to assure a strong educational system. We recommend that the state work toward a general increase in salaries of teachers to levels of 25% above those now in effect, and that this increase be implemented over a three-year period

- School districts should be encouraged to examine teacher pay scales and the criteria used to determine compensation levels. In addition to academic preparation and longevity, competence and other performance factors should enter into salary determinations

- Awards should be made to superior teachers to recognize their efforts. We encourage school boards to consider merit pay, performance-based bonus plans, support for summer projects, accelerated salary awards, sabbatical leaves and participation in conferences as positive ways to recognize and encourage outstanding teachers. The issue of merit pay must not, however, be allowed to obscure the fact that teachers' salaries are too low to recruit the best of our college graduates or to keep the fine teachers we now have in the profession

Management and Governance in Education (Pages 31-32)

- The training of administrators needs to be intensified to insure that they have the

skills necessary to work constructively with people and to provide schools with effective academic leadership

School Financing (Pages 32-33)

- The issue of how we finance our schools is basic to determining how to provide quality education. The implications of current state laws that bear on this topic should be reexamined by the executive and legislative branches of the state government

THE GOVERNOR'S COMMITTEE ON QUALITY EDUCATION

PROCEEDINGS

During its organizational meeting the Committee discussed how best to approach the task that the Governor had set for us. We recognized that timeliness was of the essence in light of national expressions of concern for education in the United States, and the high level of discussion of educational matters within the state among parents, teachers, educators, students, and our elected representatives. We also appreciated the impracticality of attempting to do far-reaching research on national educational issues as they might apply to Arizona, in view of available time and resources.

The Committee has depended upon a survey of the reports of various national commissions on education. Generally, we believe that the findings mirror the problems we face in Arizona. When the need for data that was specific to Arizona arose, we were able to rely upon the staff and resources of the State Department of Education, which was most cooperative. The Committee decided to focus its energy on the state educational system from kindergarten through 12th grade (K-12), since these are the formulative grades in the educational development of children and the focus of current controversies.

We believe that the Committee has identified a number of elements of our educational system that could be strengthened; we have proposed ways of doing so. In other instances, we have identified problem areas, possible ways of approaching them, and opportunities that we believe should be pursued. These suggestions will require time, determination, and funding to carry out, but we believe that action is necessary if Arizona is to provide educational opportunities of superior quality to the young people of our state.

Each member of the Committee received copies of reports that delineate the educational system in the United States as it has been perceived by various groups of educators and laymen. Among these were Nation at Risk; Academic Preparation for College: What Students Need to Know and Be Able to Do; The Paideia Proposal; and Action for Excellence (see Appendix III). Other materials were collected from journals, periodicals and the press. These served as excellent introductions to problems that have been identified in Arizona as well as other states across the nation.

Primary and Secondary School Skills

What expectations should we have from our primary and secondary schools? Exactly what

skills should we expect students to have on graduation from an Arizona high school?

Concerns were voiced about the breadth and depth of the educational experience that students receive through high school. The apparent inability of graduates to communicate effectively through writing was cited as a major cause for concern. This appears to reflect a lack of skill that many students have in developing and organizing their thoughts in a clear and logical manner and expressing those thoughts directly and simply. The inability to structure grammatically correct sentences and to spell properly are also perceived as common failings.

We believe that students are not being adequately challenged or stimulated by the educational experience. Education should be a process that continues throughout life. The years of formal schooling through high school should generate an appetite for knowledge and, at best, a love for learning. Teachers and parents must work together to stimulate the student's appetite for education. The school curriculum must be provocative enough to nurture student interest and enthusiasm.

We recognize that not all students have the ability or desire to be academicians. We do believe that the large majority of children have the capability to absorb the basic skills needed to adequately function in our society. We believe that our educational system should provide students who do not pursue a higher education with the skills and knowledge they need to become effective and productive citizens.

The following summarizes the Committee's findings:

- Arizona's primary and secondary schools should provide students with fundamental skills in written and oral communication, science, mathematics, social sciences and the arts. All students should have the essential intellectual skills to be effective and productive citizens and to progress to a formal college or university education or to gainful employment

To this end, we recommend:

- Arizona's elementary schools should provide students with a sound basis for the study of English language; writing; computational and problem-solving skills; science; social studies; foreign languages; and the arts. Teachers and parents should promote an enthusiasm for learning and individual development

Testing and Academic Achievement

At the present testing takes up a high percentage of classroom time, and Committee members feel that it is often overdone and adds

little to the educational process. We believe that some of these efforts should be redirected to make standardized tests and other measures valuable teaching and learning tools. Slow learners should be identified as early as possible so that they can be given additional attention. This is especially critical in the primary grades where reading skills are being developed. Failure to learn to read with facility inevitably dooms a youngster to subsequent failure in all other subjects. An assessment of how well a student is progressing with reading skills can only be accomplished by frequent and careful testing.

Conversely, the gifted student should not be held back to the point where learning ceases to be challenging and gratifying. Testing can identify these individuals so that interesting and productive course work can be provided. The Committee strongly believes that promotion from grade to grade must reflect achievement, not the passing of another year.

We also recognize that there are negative aspects associated with the failure of an individual to keep up with the majority of his or her peers. These include the embarrassment associated with failure, a diminishment of the will to try to master skills that "I'm not good at," and even a decision to drop out of school at an early age. Both society and the individual pay a real price when a student drops out: the cost to society is the loss of productivity; the cost to the student is incalculable.

Thus, the dilemma that we have forced upon our schools and teachers is the expectation that they will teach our students as if they were all capable of progressing at the "normal" rate in a normal classroom setting--this despite clear evidence that such an expectation is unrealistic. A consequence has been "social promotion" as the only acceptable course of action open to the schools; parents as a group are understandably reluctant to have their children labeled as failures. A result of social promotion has been, predictably, declining standards and declining performance.

The issue of cultural bias in widely used tests has been raised, and must not be lightly dismissed. Too often testing has been viewed as a measure of what an individual does not know. Good testing should measure the knowledge of a student and indicate what must be done by student and teacher to achieve the next level of mastery.

Weighing all of these factors and recognizing that grades 1-3 are the most critical for all students, the Committee believes that the State of Arizona should use the following approach:

- Grades and standardized tests should be used carefully to measure achievement levels of students and to identify slow learners so that additional instruction can be provided to overcome deficiencies

- Instruction in developing effective work and study habits should be provided to students at an early age and continued until such habits are firmly ingrained

- Alternative systems, such as nongraded classrooms, should be experimented with for the first four years of schooling as possible means of insuring that the basic skills are mastered without the social stigma of failure

- Promotion should be based upon achievement

An important part of education is to develop the student's ability to work independently. This can be accomplished through the effective use of homework. Homework also provides an opportunity for meaningful parental involvement in the educational process. The Committee recommends that:

- The concept of homework should be introduced early in the school experience. The amount of independent work that is expected from students should be reviewed and increased where appropriate

Time Commitment to Education

The Committee reviewed data relative to the framework within which education is offered in Arizona. It seems clear that children are capable of participating in a meaningful learning experience at a younger age than is reflected by current practices. Secondly, the intensity of the educational experience should be increased by lengthening both the school day and the school year. We note that educational time requirements in Arizona are the lowest in the nation.

While it is difficult to know what time framework for education would be ideal, we recommend that Arizona adopt the following standards, which approximate national norms, on a provisional basis:

- The school year should be increased from 175 to 185 days

- Kindergarten should begin at age four and be a full four-hour program

- Minimum time for grades 1-3 should be expanded from four to five hours a day

- Minimum time for grades 4-6 should be expanded from five to six hours a day

- Minimum time for grades 7-12 should remain as presently structured

- High school students should be required to take a minimum of five academic courses (now four) for each term they are enrolled

- Kindergarten should become a

meaningful educational experience in which the basic skills are introduced

- Attendance and participation in school activities should be encouraged and reinforced by schools and parents

- The State Board of Education should initiate a detailed study for all grade levels on the amount of time teachers and students spend on instructional activities

In addition to assessing the amount of time spent in the classroom, the Committee also believes that the ability to teach depends upon the quality of the time that a teacher can spend with a student. This is often limited by class size. When classes increase in size above 25 students per teacher, the personal attention that a student can receive is drastically limited, and the quality of the educational experience decreases. It is imperative that classes be kept to manageable sizes so that the education of students will not be further compromised.

Curriculum Requirements

After reviewing the results of national studies, the Committee strongly recommends that the content of K-12 courses be strengthened. At the present, it is possible for an Arizona high school student to complete the 12th grade without an adequate exposure to the basics and without the intellectual skills that should be possessed by every high school graduate. The issue of course work is discussed below. Further, we recommend that:

- High school graduation requirements should be increased to 22 units and include the following:

  English - 4 years
  Mathematics - 3 years
  Science - 3 years
  Social Studies - 3 years
  Computer Science - 1/2 year

  In addition, college bound students should be encouraged to take two years of a foreign language

It was noted by the Committee that there is evidence to indicate that students are capable of learning foreign languages in elementary school where instruction might be more effective and appropriate. Although the Committee has not made a specific recommendation in this matter, it urges that the issue be studied.

The Committee is concerned that our schools are not providing sufficient opportunities for our gifted students. We recognize that this may represent a significant hardship for smaller school districts, but believe that practical and affordable educational opportunities can be developed to provide gifted students with an advanced curriculum to which their

academic talents can respond. Therefore, we recommend:

- Additional opportunities should be provided for academically gifted students

Bilingual Education

Arizona has a substantial population of people who do not speak English or for whom it is a second language. From data gathered by the staff of the Board of Education, there are 87,000 students who speak a language other than English at home. Spanish is the primary language for 60,000 students; over 20,000 students speak a native American language. Despite significant efforts to provide bilingual educational opportunities to students in Arizona, doubts have been expressed as to the effectiveness of current programs of some districts in meeting the needs of the students exposed to them. More disturbingly, the Committee heard testimony that questioned the basic philosophy behind bilingual education from members who had first-hand experience with the programs.

The Committee clearly recognizes that the State of Arizona has an obligation to educate non-English-speaking students. We have serious concerns about how effective past efforts have been. There seems to be a paucity of research bearing on the relative merits of various approaches to teaching those who speak languages other than English. Some educators, for example, favor a "total immersion" technique. Others believe that it is better to gradually but steadily introduce English into the classroom while subjects are being largely taught in the students' native tongue. There is no agreement on how long a bilingual program should continue at the elementary level. There is a strong conviction that too few teachers really have the necessary language and teaching skills to conduct an effective bilingual program.

Arizona has had a visible commitment to bilingual education for over a decade, and it is disturbing to encounter a high degree of uncertainty as to the effectiveness of current programs. It is clear that an intensive analysis of bilingual education should be launched immediately. The question is not <u>if</u> we should be involved in these efforts, but <u>what</u> we must do to develop effective programs. The goal must be to facilitate full participation by non-English speaking students in Arizona's educational system as quickly as possible.

To summarize the concerns of the Committee on the subject of instruction for non-English speaking students, we recommend:

- The State Board of Education should work to achieve a statewide consensus on the objectives of bilingual education programs in Arizona

- Early morning and after-hours instruction in English should

be available for non-English-speaking students to quickly give them a command of the language

- Teacher preparation for bilingual instruction should be improved

- Research should be undertaken to evaluate the relative effectiveness of different approaches to achieving proficiency in English

In teaching non-English-speaking children we must realize that we are also dealing with non-English-speaking parents. Because of language and cultural barriers, it is often difficult to involve these parents in the schooling process. Special efforts should be made by school districts to reach these parents, since parental involvement is vital in the educational process.

Adequate funding for bilingual programs should be provided. Educators must be prepared to provide assurances and data that demonstrate that programs are effective and serve the needs of students as they become proficient in English.

Education of the Handicapped

In recent years, our nation's schools have been required to accept a major share of the responsibility for the care and education of the handicapped, including those children afflicted with severe multiple handicaps. This obligation has placed an enormous financial burden on all school systems. A diversion of resources and the occasional inclusion of less able students with their chronological peers has altered classroom situations to the extent that many teachers have a difficult time coping with the additional demands that have been placed on them.

While the Committee does not question the social value or the human benefits that these educational programs have brought to society, we have been made aware that these responsibilities have often been met at the expense of traditional educational objectives. Furthermore, school districts have had to reallocate scarce resources to accommodate these mandated programs. After reviewing the scope of programs for the handicapped that are being undertaken in Arizona, the Committee recommends that:

- Programs for the handicapped should continue to receive high priority. Adequate funding should be provided to school districts to pay for these programs

Evaluation of School Program

Unquestionably, the most commonly voiced concern by the various commissions that have reviewed education in the United States has dealt with the school curriculum. Criticisms have been leveled at

the content of courses, the variety of courses among which students can choose, the quality and content of textbooks that are being used, the quality of teaching in classrooms and the absence of a well-defined core curriculum to which every high school graduate is exposed.

A strong sentiment prevails that high school students today are academically less well prepared than were the students of two decades ago. The steady, monotonous decline that we have observed in both the ACT and SAT test scores is cited as evidence of a deterioration in the quality of U.S. education. While one may quarrel with specific findings and recommendations, the preponderance of evidence clearly indicates that the quality of the educational experience in our schools needs to be significantly improved. We believe that these convictions are shared by most of the citizens of Arizona.

In the last session the legislature enacted Senate Bill 1049. This legislation, among other things, requires the State Board of Education to prescribe a minimum course of study in the common schools and a minimum course of study for the promotion of students from the 8th grade. It also requires the State Board to prescribe a minimum course of study and to define competency requirements for graduation from high school. The Committee wishes to go on record as supporting and applauding this effort.

Approximately ten years ago the College Board established the Educational EQuality Project as an effort to strengthen the quality of education in our secondary schools. From this effort a document titled Academic Preparation for College: What Students Need To Know and Be Able To Do (see Appendices I and II) has been prepared. The document is a thorough, well written review of the overall academic curriculum. Specific courses and their content are also considered.

The Committee believes that this document should be a cornerstone for reviewing our educational programs in Arizona. The report can form a basis for restructuring the curriculum now offered by our school system. Based upon our review the Committee recommends:

- The State should establish a task force of citizens, educators, business and labor leaders to identify clearly the skills that elementary schools should provide to all students. The recommended courses of study and course content should be evaluated against the recommendations developed by the Educational EQuality Project and contained in Academic Preparation for College

- A second task force should be appointed to review the high school curriculum. Outlines similar to those presented in the Educational EQuality Project report should be

developed for Arizona's schools

- An Arizona high school graduate should be able to demonstrate a clear mastery of basic skills. These include reading, writing, speaking and listening, mathematics, reasoning and study skills. Descriptions of competency levels are contained in Chapter 2 of the Educational EQuality Project report
- The State Board of Education should mandate the minimum competency levels that are to be required of all Arizona high school graduates. A minimum must not become a guideline for the optimum or the average

Textbooks

At the present, students in the state of Arizona are provided with the use of textbooks free of charge for grades K to 8. Students in grades 9 through 12 must purchase the textbooks they need for their classes. This works a financial hardship on many families. We believe that Arizona should adopt the practice followed by the majority of the nation and provide for the free use of textbooks by students through high school. The incremental cost of this to the state of Arizona was estimated to be approximately $6 million per year. We believe that the State can afford and should provide for this expenditure.

The Committee recommends:

- The State should provide free use of textbooks through grade 12

A second aspect of textbooks about which the Committee was concerned was the quality of the content. There was a clear consensus that the textbooks being used across the nation and in Arizona are inadequate. We recognize that textbooks are written with a national audience in mind. Although the population of Arizona is not large enough for us to exert a major influence on content of these books, we believe that our voices should be added to those demanding improved quality. We also believe that it would be useful for the school districts and the State Board of Education to prepare supplemental materials on the special features and cultures of Arizona. These publications could be added to other texts used in the classroom.

Academic Credits

It is current practice in most Arizona schools to award academic credit for non-academic activities such as physical education, athletics, cheerleading and driver's education. The Committee does not question the value of these courses in enriching the educational experience. We believe, however, that schools may be sending the wrong message to students and their parents by awarding credit for these activities on equal basis with credit earned for academic courses.

Although the issue is not an

easy one to resolve, we believe it is one of exceptional importance. It should be addressed seriously by the State Board of Education and local school districts. At the moment there appears to be a major imbalance in the participation of students and their parents in extracurricular activities as compared to academic activities. There has been an overemphasis in recent decades on the role of non-academic activities in the high school experience. We believe that if the kind of energy and enthusiasm demonstrated by parents of students involved in extracurricular activities could be focused on academic programs, many of the problems that our school systems face would quickly be resolved.

The Committee believes that the State of Arizona must clearly define a core curriculum to which each student should be exposed. To graduate from school, each student should be required to take and pass a representative number of courses in this core area. Credit should be awarded for other activities, but not on a basis equal to the credit given for academic offerings. For example, members agree that course credit should be given for a basic course in physical education, but that advanced or competitive physical education programs should be offered only for individual enrichment.

In summary, the Committee recommends:

- Academic activities must be recognized by those involved with education as the primary focus of the educational process. A strong academic curriculum as outlined throughout our report and in the appendix should be defined for our school system, and academic progress and graduation should be based upon successful completion of the core program

Slow and Gifted Students

Although the special problems of slow and gifted students were touched upon earlier, they should be singled out for special attention. In education there are two basic parameters a teacher must contend with: the innate ability of a student to learn and the rate at which learning can occur. Most students have the ability to absorb material that is presented in the classroom. Some of them comprehend new subject matter more slowly than average. Slow learners can easily become dropouts if they are not handled properly.

In order to succeed, slow learners need time, attention and individual instruction. In the normal classroom setting, teachers often lack the time and the special skills necessary to deal effectively with these students. The Committee believes that programs such as after-hours instruction, Saturday classes, and free summer school offer special promise for helping slow learners keep up with their peers. The

Committee strongly recommends:

- The State should provide adequate financial resources for schools to deal with the difficulties of educating slow learners

On the other end of the learning curve are students who have the capacity to absorb material at an accelerated rate and comprehend subject matter that goes far beyond the level of the normal class offering. These students have the potential of making extraordinary contributions to society and should be encouraged in every possible way.

It may be feasible to establish special schools for the gifted in our larger communities to provide them with an opportunity to progress at an accelerated pace. We believe that it would also be desirable to explore the feasibility of using community college and university instructors and representatives from industry to help provide an enriched curriculum. Special course offerings could be constructed and taught by visiting faculty members from higher education and industry. A problem with this approach in past years where colleges and universities were concerned was that there was no financial compensation for the effort and, in fact, it represented an additional burden on the schools. The Committee recommends that:

- School districts should be given a financial incentive to provide advanced class offerings for academically gifted children

- Efforts should be made to involve industry representatives and members of the professions in enriching courses for the gifted

Course Content

The State Board of Education currently provides for a review of the state course requirements, and Senate Bill 1049 gives the State Board additional authority in this area. The Committee wishes to applaud the State Board of Education for its past efforts. We believe it is important that there be close monitoring of core course offerings to insure that they are not watered down or debased. A pre-algebra course, for example, cannot be regarded as a substitute for algebra.

A large number of courses not reviewed by the State Board fall into the category of "elective" offerings. The Committee believes that these activities are more properly reviewed and monitored at the level of the local school board or individual school. We recommend that the State Board of Education prepare guidelines for the local boards to use in making such reviews.

In summary, the Committee recommends that:

- The State Board of Education should continue to review

periodically all state course requirements and course content for K-12 classes

- Local boards and schools should review the content and effectiveness of elective and core course offerings. The State Board of Education should develop guidelines for this process

Higher Education in Arizona

The State Board of Regents has recently reviewed the admission requirements for the three state universities. Requirements for admission have been clearly defined and upgraded. The Committee recognizes this effort by the Board of Regents and strongly supports their action.

The state universities have a direct impact on the quality of education in our primary and secondary schools. In a real sense, the standards that they set for admission will define what is being taught through the high school level in Arizona public schools. The Board of Regents has recently prepared a booklet (Ready for Success, Making High School Count) for statewide distribution that gives high school students information about the preparation they will require for admission to the universities. We urge all teachers, parents and students to become familiar with this booklet and the Educational EQuality Project report, Academic Preparation for College.

Vocational Education

Vocational education has received considerable attention in the State of Arizona over the last decade. The widely differing points of view as to what constitutes vocational education and its proper role in our schools was a matter of concern to the Committee. The Committee did not have the time or resources to analyze vocational education efforts. We believe that the State Board of Vocational and Technical Education should examine the current system of providing vocational education to determine optimal content and the best mode of delivery.

Teacher Education Programs

All of the Committee's meetings were open to the public and were attended by a number of teachers and parents. The Committee provided these individuals with opportunities to speak; the comments received were stimulating and valuable. Members of the audience as well as the Committee expressed strong concern as to the adequacy of teacher training. Much criticism was directed toward the colleges of education in our own state as well as around the nation. The following points were emphasized:

1. Teachers need a stronger grounding in basic academic subject matter than they are now receiving

2. Colleges of education place far too much emphasis on methodology of questionable relevance
3. Colleges of education should place more emphasis on meaningful methodology such as human relations and communication skills. Methodology courses should be geared to meet the different needs of elementary, middle and high school teaching
4. More effort should be directed toward increasing student teaching time and improving the quality of supervision
5. There is a need for greater cooperation and interaction between the academic disciplines and the colleges of education

Among numerous suggestions were that teacher training be centralized in the liberal arts colleges, and that education colleges be confined to graduate courses that would focus on methodology and student teaching. Another suggestion was that ways be found to remedy the serious lack of public school classroom experience evidenced by some professors in colleges of education. The desirability of involving students in classroom teaching experiences early in their college careers was maintained by other speakers. The objective would be to weed out those students who do not appear to have the necessary ability to become teachers.

In any review and evaluation process, including that conducted by the Governor's Committee for Quality Education, there is a great temptation to single out one issue and identify it as "the major problem." Such a conclusion may or may not be justified. However, the Committee believes that the state's colleges of education ignore the above expressions of concern at their own peril. We note that at some state universities across the country a dismantling or reduction in the scope of colleges of education is already underway. The Committee recommends:

- A task force comprised of representatives from our state university colleges of education, teachers, principals and school superintendents should reexamine the manner in which teachers are trained. A report with recommendations for improvements should be submitted to the Governor, the Board of Regents, the Superintendent of Public Instruction and the State Board of Education. Areas that should be investigated include the student teaching experience; the amount of academic preparation required for teachers, particularly those aiming to teach in secondary schools; the amount and quality of training in the areas

of human relations and communication skills; the number and relative importance of required methodology courses, and the degree of integration and cooperation between the colleges of education and other academic units on university campuses

Certification of Teachers

An individual needs to be certified by the Department of Education to be a classroom teacher at the elementary or secondary level in the State of Arizona. The intent of certification is to assure that prospective teachers have undergone a formal course of professional training and have achieved a specific level of subject mastery. It was concluded by most Committee members, however, that there is not necessarily a correlation between certification and the competency to teach. Some members felt that certification creates an artificial barrier for qualified individuals who are capable of being effective teachers. The Committee was also concerned that current certification testing may be systematically excluding minorities from teaching positions.

The State of California has recently enacted legislation to enable school districts to hire noncertified teachers in areas where there are not enough certified teachers available. The Committee believes that there are individuals in Arizona who would be qualified to teach certain subjects in our school system but who do not have the required education courses to qualify for certification. The Committee feels that it would be useful for the state to explore mechanisms by which such individuals could become teachers without going through current certification procedures. Some Committee members suggested that teachers who take the necessary courses and meet the certification requirements will have a far better chance to succeed in the profession.

It was generally agreed that there should be a measure of competency for teachers who are entering the profession; there was no agreement that certification provides an optimal solution. The Committee recommends:

- Certification of teachers as a prerequisite for employment needs to be evaluated for effectiveness. Certification should be made more flexible to allow highly qualified, noncertified individuals to enter the teaching profession. The effectiveness of this measure should be evaluated by the State Board of Education after a suitable period has elapsed

Employment, Evaluation and Tenure of Teachers

Policies regarding the hiring of teachers differ in districts

around the state. Procedures that were described to the Committee often reflect very poor personnel practices. In some school districts the majority of new hires are employed during the summer months or just before school opens. The result is that the hiring decision is made solely by the school administrator. Good personnel practices dictate that as much of the academic community as possible be involved in the recruiting and hiring of new faculty members. There is, however, agreement with the proposition that the final decision should be left to the school administrator.

The issue of tenure has often been cited as a matter of nationwide concern. There is a belief that tenure simply serves to protect the incompetent teacher. The issue of tenure is linked to teacher competency, teacher evaluation and teacher promotion and compensation.

The true function of tenure is to guarantee the qualified teacher with a measure of academic freedom necessary in the educational process. It serves to protect the teacher from arbitrary and capricious decisions regarding his or her employment. Tenure was not intended, nor should it be used, to protect incompetent teachers from dismissal.

The key to resolving many of the issues surrounding tenure and promotion seems to reside in developing and implementing clear and reasonable personnel policies. These should be understood by all administrators and employees in the school system. Evaluation of teachers should not be confined to probationary teachers alone. Evaluating teachers and maintaining high academic standards is one of the primary responsibilities of school administrators. The evaluation of teachers should be carried out throughout the school year. When practical, comments from peers, students and parents should be sought. Older students are often capable of providing meaningful observations.

It is important that evaluation be viewed as an opportunity for a teacher to improve his or her performance rather than as a threat to job security. Some Committee members noted that the Arizona Teacher Residency Program is working well as a tool for the assessment of teachers and that it should be more widely applied. The Governor's Committee recommends that:

- Performance requirements for teachers, often vague, need to be clearly defined by each school district (required by law as of 1983)

- Programs to evaluate and improve the performance of probationary teachers should be developed and implemented by each school district

- Tenured teachers should be evaluated regularly to insure continuing effectiveness in

the classroom and competency in the subject matter being taught

- Tenure standards are often nonexistent or vague. The standards for tenure need to be clearly defined by each school district

- Each school district should develop clearly defined personnel policies that define the responsibilities and obligations of all employees of the school district. These policy statements should spell out the procedures to be followed for hiring, evaluating and terminating employees. All employees should be thoroughly familiar with the policies of their school district

- School administrators should receive better instruction in the area of personnel management and should develop and implement sound personnel practices

Teacher Compensation Issues

The Committee began its discussion of this topic by reviewing the starting annual salaries of teachers compared to those offered recent college graduates in other fields. All of the data we reviewed indicated that teachers salaries were among the lowest offered.

Among the reasons for low salaries noted by the Committee is the obvious reluctance of the public to pay teachers more; the willingness of teachers to take tenure and unpaid summer vacation periods in exchange for low salaries, and the desire of the business community to keep taxes low. Another factor is overall discrimination in our society against women, who have historically dominated a profession in which remuneration has been regarded as no more than a secondary source of income. While members of the Committee differ on the importance of the above factors, there was unanimous agreement that teacher salaries are too low and must be adjusted upward if we are serious about improving the quality of education in Arizona. An increase of approximately 25% in annual salary for all teachers, based on a statewide average and in terms of 1983 dollars, would be required to raise annual salaries of teachers to a reasonable level.

One of the most serious consequences of the low level of compensation available to teachers is that few of our gifted college students elect to pursue teaching careers. One recent survey indicated that the majority of students pursuing education majors in college came from the bottom quarter of their classes, a situation hardly conducive to raising the quality of our educational system. In light of the compensation that teachers receive and the esteem in which they are held by our society, we are fortunate that a large number of highly

dedicated individuals have chosen to continue teaching.

Some Committee members argued that salaries for teachers should be differentiated on the basis of what courses are being taught, the competency of the teacher, and the preparation time required. Current criteria for pay increases are primarily based on longevity and the additional course credits and academic degrees that a teacher earns. The Committee believes that the basis for salary adjustments should be broadened.

The use of merit pay to reward exceptional teaching performance received consideration, although not without objection from those who felt it was a disservice to talk about merit pay when the overall base pay of teachers is so low. Concern was expressed that the issue of merit pay would obscure one of the basic problems in the teaching profession, namely low salaries. While the Committee recognizes that low salaries are a major problem, we do believe that a variety of performance-based incentives should be considered to reward outstanding teachers. A good and fair salary system is an essential part of any personnel management program. The salary system should be used to attract superior individuals, reward exceptional work and indicate that inadequate performance is unacceptable.

In summary, the Committee makes the following recommendations on the subject of teacher compensation:

- The salaries of teachers at all levels are not sufficiently competitive with industry to attract and retain teachers in the necessary numbers to assure a strong educational system. We recommend that the state work toward a general increase in salaries of teachers to levels of 25% above those now in effect, and that this increase be implemented over a three-year period

- School districts should be encouraged to examine teacher pay scales and the criteria used to determine compensation levels. In addition to academic preparation and longevity, competence and other performance factors should enter into salary determinations

- Awards should be made to superior teachers to recognize their efforts. We encourage school boards to consider merit pay, performance-based bonus plans, support for summer projects, accelerated salary awards, sabbatical leaves and participation in conferences as positive ways to recognize and encourage outstanding teachers. The issue of merit pay must not, however, be allowed to obscure the fact that teachers' salaries are too low to recruit the best of our college graduates or

to keep the fine teachers we now have in the profession

An important part of being a teacher is the feeling of gratification that one receives from teaching and working with young people. In recent years we have placed more and more of a burden upon our school systems, and we have asked our schools and teachers to deal with many of the problems that plague society. Despite the profession's often valiant efforts to respond to these demands, the image of the teacher has deteriorated. This deterioration has had a corrosive effect on teachers and the profession and works to the detriment of our educational system.

We believe that it is important that all citizens work toward elevating the teaching profession to a higher status in our society. We are entrusting to teachers the care and education of our children. It is imperative that the individuals who receive this trust be rewarded with an appropriate measure of respect. Quite simply, quality education depends upon the importance we accord it and its practitioners.

Management and Governance in Education

Effective educational reforms cannot occur without high quality school principals. The primary job of a school principal should be to function as an educational leader who spends a significant amount of time in the classroom evaluating both tenured and non-tenured teachers. The principal should establish instructional levels for teachers and academic expectations for students. Paperwork should be delegated; the principal's job should involve direct interaction with students and teachers.

In addition to having a strong academic background, a most important asset that an academic administrator can have is facility in human relations and communications. The Committee believes that the training provided to administrators is inadequate and does not prepare them to deal effectively with the challenges they are expected to meet. Administrators should be provided with special training in human relations, communications, personnel management and evaluation skills.

The Committee recognizes that school superintendents have an especially difficult job. They serve at the pleasure of the school board and their job performance is often circumscribed by the politics of the school board. In the event of dissension among school board members, these administrators may find themselves drawn into quarrels that jeopardize their positions. The Arizona School Board Association does provide an effective training program for school board members. We urge school board members to avail themselves of these training opportunities. The Committee believes it is important that these training programs emphasize

the sensitivity as well as the responsibility of a school board member's position.

In the field of management and governance, the Committee recommends that:

- The training of administrators needs to be intensified to insure that they have the skills necessary to work constructively with people and to provide schools with effective academic leadership

Parental Involvement

The importance of parental involvement in the educational process should be emphasized over and over. Parental attitudes about education and the extent of their involvement in the process have been shown to have major impacts upon student performance.

Parents can often mean the difference between success and failure for a student. A respect for learning and what education can do for a student in later life will determine how a young person approaches schooling. Parents have an obligation to understand what teachers are trying to accomplish. They need to work with their children to assure that adequate time is being spent on schoolwork assignments.

Parents also need to insist that schools provide the most effective educational opportunities available for their children. They need to consult teachers regularly and should be encouraged to take an interest in the activities of their local school boards.

Parents are both effective allies and critics. It is vital that they be listened to and utilized if educational reforms are to be achieved.

In conclusion the Committee believes it should be reiterated that education is a community effort.

School Financing

The Committee believes that the subject of school financing requires careful and thorough reexamination. Study of this complex and controversial subject is warranted in order to accomplish effective educational reform. Although many of the Committee's recommendations do not require additional funding, several critical measures mandate either more money or a different allocation of existing funds. Moreover, the current system of school financing in Arizona, which limits the current year's expenditures to a percentage increase over a basis derived from the prior year's expenditures, is not well understood.

The rationale for, and operation of, the current law are unclear to many. By urging reexamination, the Committee is not suggesting that it would be wise or desirable to tolerate very large and persistent disparities in educational expenditures between different school districts. Nor is the Committee insensitive to the legislature's desire to

instill an appropriate sense of fiscal responsibility on a statewide basis. These last considerations do not mean, however, that no variations in expenditures from district to district are desirable or permissible, other than those reflecting changes in school enrollment or historic spending patterns.

The current law prohibits taxpayers in a school district from voluntarily taxing themselves at a higher rate in order to provide more dollars for local school districts. The availability of budget overrides does not significantly alter this result, although it slightly moderates the impact of the current law. Some Arizonans question the desirability and wisdom of this severe restriction on local options.

The existing law acts as a disincentive to achieve efficiency. Rather than being rewarded for its admirable, cost-saving efforts, an individual school district that reduces its costs is perversely punisned by a budget reduction that results from its lower expenditures the previous year. The effect of this system in a period of inflation, particularly when the rising costs of fixed items such as utilities are taken into account, is to squeeze educational program and personnel expenditures. Moreover, the current system severely restricts the use of locally generated funds, with the result that incentives to engage in activities that generate such funds, or to operate programs so that revenues exceed costs, are seriously diminished. The difficulty of identifying the proper spheres for state and local control of education are illustrated by these dilemmas.

Although the Committee lacked the time to make recommendations for changing the current system of school financing, it is united in the belief that the time for a fresh look has arrived.

The Committee recommends that:

- The issue of how we finance our schools is basic to determining how to provide quality education. The implications of current state laws that bear on this topic should be reexamined by the executive and legislative branches of the state government

The Basic Academic Competencies are the broad intellectual skills essential to effective work in all fields of college study. They provide a link across the disciplines of knowledge although they are not specific to any particular discipline.

The Basic Academic Competencies are reading, writing, speaking and listening, mathematics, reasoning, and studying. These competencies are interrelated to and interdependent with the Basic Academic Subjects. Without such competencies, knowledge of history, science, language, and all other subjects is unattainable.

The Basic Academic Competencies are developed abilities, the outcomes of learning and intellectual discourse. There are different levels of competency; they can be defined in measurable terms.

Although the Basic Academic Competencies are not always identified explicitly, spelling them out provides a way to tell students what is expected of them. Knowledge of what is expected is crucial to effective learning.

In order to do effective work in college, it is essential that all students have the following academic competencies.

Reading

- The ability to identify and comprehend the main and subordinate ideas in a written work and to summarize the ideas in one's own words.

- The ability to recognize different purposes and methods of writing, to identify a writer's point of view and tone, and to interpret a writer's meaning inferentially as well as literally.

- The ability to separate one's personal opinions and assumptions from a writer's.

- The ability to vary one's reading speed and method (survey, skim, review, question, and master) according to the type of material and one's purpose for reading.

- The ability to use the features of books and other reference materials, such as table of contents, preface, introduction, titles and subtitles, index, glossary, appendix, bibliography.

- The ability to define unfamiliar words by decoding, using contextual clues, or by using a dictionary.

Writing

- The ability to conceive ideas about a topic for the purpose of writing.

- The ability to organize, select, and relate ideas and to outline and develop them in coherent paragraphs.

- The ability to write Standard English sentences with correct:
  - sentence structure;
  - verb forms;
  - punctuation, capitalization, possessives, plural forms, and other matters of mechanics;
  - word choice and spelling.

  The ability to vary one's writing style, including vocabulary and sentence structure, for different readers and purposes.

- The ability to improve one's own writing by restructuring, correcting errors, and rewriting.

- The ability to gather information from primary and secondary sources; to write a report using this research; to quote, paraphrase, and summarize accurately; and to cite sources properly.

Speaking and Listening

- The ability to engage critically and constructively in the exchange of ideas, particularly during class discussions and conferences with instructors.
- The ability to answer and ask questions coherently and concisely, and to follow spoken instructions.
- The ability to identify and comprehend the main and subordinate ideas in lectures and discussions, and to report accurately what others have said.
- The ability to conceive and develop ideas about a topic for the purpose of speaking to a group; to choose and organize related ideas; to present them clearly in Standard English; and to evaluate similar presentations by others.
- The ability to vary one's use of spoken language to suit different situations.

Mathematics

- The ability to perform, with reasonable accuracy, the computations of addition, subtraction, multiplication, and division using natural numbers, fractions, decimals, and integers.
- The ability to make and use measurements in both traditional and metric units.
- The ability to use effectively the mathematics of:
  - integers, fractions, and decimals;
  - ratios, proportions, and percentages;
  - roots and powers;
  - algebra;
  - geometry.

  The ability to make estimates and approximations, and to judge the reasonableness of a result.

- The ability to formulate and solve a problem in mathematical terms.

- The ability to select and use appropriate approaches and tools in solving problems (mental computation, trial and error, paper-and-pencil techniques, calculator, and computer).

- The ability to use elementary concepts of probability and statistics.

Reasoning

- The ability to identify and formulate problems, as well as the ability to propose and evaluate ways to solve them.

- The ability to recognize and use inductive and deductive reasoning, and to recognize fallacies in reasoning.

- The ability to draw reasonable conclusions from information found in various sources, whether written, spoken, or displayed in tables and graphs, and to defend one's conclusions rationally.

- The ability to comprehend, develop, and use concepts and generalizations.

- The ability to distinguish between fact and opinion.

Studying

This set of abilities is different in kind from those that precede it. They are set forth here because they constitute the key abilities in learning how to learn. Successful study skills are necessary for acquiring the other five competencies as well as for achieving the desired outcomes in the Basic Academic Subjects. Students are unlikely to be efficient in any part of their work without these study skills.

- The ability to set study goals and priorities consistent with stated course objectives and one's own progress, to establish surroundings and habits conducive to learning independently or with others, and to follow a schedule that accounts for both short- and long-term projects.

- The ability to locate and use resources external to the classroom (for example, libraries, computers, interviews, and direct observation), and to incorporate knowledge from such sources into the learning process.

- The ability to develop and use general and specialized vocabularies, and to use them for reading, writing, speaking, listening, computing, and studying.

- The ability to understand and to follow customary instructions for academic work in order to recall, comprehend, analyze, summarize, and report the main ideas from reading, lectures, and other academic experiences; and to synthesize knowledge and apply it to new situations.

- The ability to prepare for various types of examinations and to devise strategies for pacing, attempting or omitting questions, thinking, writing, and editing according to the type of examination; to satisfy other assessments of learning in meeting course objectives such as laboratory performance, class participation, simulation, and students' evaluations.

- The ability to accept constructive criticism and learn from it.

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English

Reading and Literature:

- The ability to read critically by asking pertinent questions about what they have read, by recognizing assumptions and implications, and by evaluating ideas.
- The ability to read a literary text analytically, seeing relationships between form and content.
- The ability to read with understanding a range of literature, rich in quality and representative of different literary forms and various cultures.
- Interest in and a sense of inquiry about written works.
- The ability to respond actively and imaginatively to literature.

Writing:

- The recognition that writing is a process involving a number of elements, including collecting information and formulating ideas, determining their relationships, drafting, arranging paragraphs in an appropriate order and building transitions between them, and revising what has been written.
- The ability to write as a way of discovering and clarifying ideas.
- The ability to write appropriately for different occasions, audiences, and purposes (persuading, explaining, describing, telling a story).
- Skill and assurance in using the conventions of standard written English.

Speaking and Listening:

- The ability to engage in discussion as both speaker and listener - interpreting, analyzing, and summarizing.
- The ability to contribute to classroom discussions in a way that is readily understood by listeners - that is, succinct and to the point.
- The ability to present an opinion persuasively.
- The ability to recognize the intention of a speaker and to be aware of the techniques a speaker is using to affect an audience.
- The ability to recognize and take notes on important points in lectures and discussions.
- The ability to question inconsistency in logic and to separate fact from opinion.

Language:

College entrants will also need to understand in some depth the following principles concerning the English language.

- English, like every other language, operates according to grammatical systems and patterns of usage.
- English continues to undergo change.
- English is influenced by other languages, both ancient and modern.
- English has several levels of usage, and consequently the language appropriate in some situations may not be appropriate in others.
- English has many dialects.
- English words, like those of other languages, gather meaning from their context and carry connotation.

Mathematics

- The ability to apply mathematical techniques in the solution of real-life problems and to recognize when to apply those techniques.

- Familiarity with the language, notation, and deductive nature of mathematics and the ability to express quantitative ideas with precision.

- The ability to use computers and calculators.

- Familiarity with the basic concepts of statistics and statistical reasoning.

- Knowledge in considerable depth and detail of algebra, geometry, and functions.

More specifically, college entrants will need the following preparation in mathematics.

Computing:

- Familiarity with computer programming and the use of prepared computer programs in mathematics.

- The ability to use mental computation and estimation to evaluate calculator and computer results.

- Familiarity with the methods used to solve mathematical problems when calculators or computers are the tools.

Statistics:

- The ability to gather and interpret data and to represent them graphically.

- The ability to apply techniques for summarizing data using such statistical concepts as average, median, and mode.

- Familiarity with techniques of statistical reasoning and common misuses of statistics.

Algebra:

- Skill in solving equations and inequalities.
- Skill in operations with real numbers.
- Skill in simplifying algebraic expressions, including simple rational and radical expressions.
- Familiarity with permutations, combinations, simple counting problems, and the binomial theorem.

Geometry:

- Knowledge of two- and three-dimensional figures and their properties.
- The ability to think of two- and three-dimensional figures in terms of symmetry, congruence, and similarity.
- The ability to use the Pythagorean theorem and special right triangle relationships.
- The ability to draw geometrical figures and use geometrical modes of thinking in the solving of problems.

Functions:

- Knowledge of relations, functions, and inverses.
- The ability to graph linear and quadratic functions and use them in the interpretation and solution of problems.

College entrants expecting to major in science or engineering or to take advanced courses in mathematics or computer science will need the following more extensive mathematical proficiency.

Computing:

- The ability to write computer programs to solve a variety of mathematical problems.

- Familiarity with the methodology of developing computer programs and with the considerations of design, structure, and style that are an important part of this methodology.

Statistics:

- Understanding of simulation techniques used to model experimental situations.
- Knowledge of elementary concepts of probability needed in the study and understanding of statistics.

Algebra:

- Skill in solving trigonometric, exponential, and logarithmic equations.
- Skill in operations with complex numbers.
- Familiarity with arithmetic and geometric series and with proofs by mathematical induction.
- Familiarity with simple matrix operations and their relation to systems of linear equations.

Geometry:

- Appreciation of the role of proofs and axiomatic structure in mathematics and the ability to write proofs.
- Knowledge of analytic geometry in the plane.
- Knowledge of the conic sections.
- Familiarity with vectors and with the use of polar coordinates.

Functions:

- Knowledge of various types of functions including polynomial, exponential, logarithmic, and circular functions.
- The ability to graph such functions and to use them in the solution of problems.

Science

Laboratory and Field Work:

- The ability to distinguish between scientific evidence and personal opinion by inquiry and questioning.
- The ability to recognize the role of observation and experimentation in the development of scientific theories.
- Sufficient familiarity with laboratory and field work to ask appropriate scientific questions and to recognize what is involved in experimental approaches to the solutions of such questions.
- The skills to gather scientific information through laboratory, field, and library work.
- The ability to organize and communicate the results obtained by observation and experimentation.

Mathematical Skills:

- A quantitative understanding of at least one field of science - an understanding that employs the basic mathematical proficiency for all college entrants outlined in the foregoing description of learning outcomes in mathematics.
- The ability to interpret data presented in tabular and graphic form.
- The ability to draw conclusions or make inferences from data.
- The ability to select and apply mathematical relationships to scientific problems.
- The ability to use mathematical relationships to describe results obtained by observation and experimentation.

- The ability to interpret, in nonmathematical language, relationships presented in mathematical form.

Fundamental Concepts:

- Understanding in some depth of the unifying concepts of the life and physical sciences such as cell theory, geological evolution, organic evolution, atomic structure, chemical bonding, and transformations of energy.

Social Studies

- Basic factual knowledge of major political and economic institutions and their historical development.
- Basic factual knowledge of the social and cultural fields of history.
- An introductory knowledge of the content and concepts of the social sciences.
- A grasp of major trends in the contemporary world (for example, nationalism or urbanization).
- Familiarity with a variety of written, numerical, and visual forms of data.
- Familiarity with the techniques of quantitative and nonquantitative analysis.
- Familiarity with diverse interpretations of data.

History:

- College entrants will need certain general knowledge and skills in political, social, and cultural history.

- Some understanding of the relationship between present and past, including contrasts between contemporary institutions and values and those of the past, the reasons for these contrasts, and leading continuities between past and present.

- Some understanding of how to approach the problem of change over time.

- The ability to recognize historical cause and effect.

- The ability to identify major historical turning points.

- Some ability to develop historical interpretations.

More specifically, college entrants will need the following basic knowledge.

World History, Geography, and Cultures:

- The basic features of major societies and cultures in the contemporary world: their geography, major economic and social structures, political systems, and religions.

- The historical developments underlying present connections and similarities among the world's peoples, and the major differences dividing them.

- The chronology and significance of major events and movements in world history (for example, the Renaissance, the Industrial Revolution, and the spread of Islam).

- The international context of contemporary diplomacy and economics.

United States History:

- The relationship between events and historical trends in the United States and trends elsewhere in the world, developed through analysis of major similarities and differences.

- The interaction among peoples of different national origins, races, and cultures and how such interaction has shaped American history.

- The chronology and impact of political events, development of governmental and other social institutions, technological and environmental changes, and changes in social and cultural values.

Social Science:

College entrants will need the following basic knowledge and skills in the social sciences.

- The ability to understand basic information developed by the social sciences, including statistical data and other materials.

- Familiarity with the basic method of the social sciences, that is, with the framing and empirical testing of hypotheses.

- A basic understanding of at least one of the social sciences and of how its practitioners define and solve problems.

- Familiarity with how to explore a social problem or social institution by means of ideas drawn from several social sciences.

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Major Resources

Appendix III

Academic Preparation for College: What Students Need to Know and Be Able to Do, Educational EQuality Project; The College Board Publications, Department A35, Box 886, New York, New York 10101, 1983. ($20 per 20 copies)

Action for Excellence, Task Force on Education for Economic Growth, Distribution Center, Education Commission of the States; 1860 Lincoln, #300, Denver, Colorado 80295, 1983. ($5 per copy)

A Nation at Risk: The Imperative for Educational Reform, The National Commission on Excellence in Education; Superintendent of Documents, U.S. Government Printing Office, Washington D.C. 20402, 1983. ($5 per copy)

The Paideia Proposal, Adler, J. Mortimer, Macmillan Publishing Co., Inc., New York, 1982